Figure 3B: IBA1+ Microglia (#/ROI)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	28.81	F (1, 21) = 10.53	0.0039	**
Sex	1.155	F (1, 21) = 0.4220	0.523	ns
LPS	0.4474	F (1, 21) = 0.1635	0.69	ns
Age x Sex	1.226	F (1, 21) = 0.4482	0.5105	ns
Age x LPS	4.525	F (1, 21) = 1.654	0.2125	ns
Sex x LPS	0.9847	F (1, 21) = 0.3599	0.555	ns
Age x Sex x LPS	7.424	F (1, 21) = 2.713	0.1144	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	2.705	21	0.1482	ns
Adult:Male LPS vs. Aged:Male LPS	0.1898	21	>0.9999	ns
Adult:Female Saline vs. Aged:Female Saline	1.632	21	0.7772	ns
Adult:Female LPS vs. Aged:Female LPS	2.267	21	0.3401	ns
Adult:Male Saline vs. Adult:Male LPS	1.023	21	0.9899	ns
Adult:Female Saline vs. Adult:Female LPS	0.08137	21	>0.9999	ns
Aged:Male Saline vs. Aged:Male LPS	1.933	21	0.5638	ns
Aged:Female Saline vs. Aged:Female LPS	0.2734	21	>0.9999	ns
Adult:Male Saline vs. Adult:Female Saline	0.1334	21	>0.9999	ns
Adult:Male LPS vs. Adult:Female LPS	1.255	21	0.9518	ns
Aged:Male Saline vs. Aged:Female Saline	1.023	21	0.9899	ns
Aged:Male LPS vs. Aged:Female LPS	1.202	21	0.9644	ns
Figure 3C: IBA1+ Staining Area (x10^6 voxels)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	6.452	F (1, 21) = 2.965	0.0998	ns
Sex	0.2116	F (1, 21) = 0.09727	0.7582	ns
LPS	4.591	F (1, 21) = 2.110	0.1611	ns
Age x Sex	4.876	F (1, 21) = 2.241	0.1493	ns
Age x LPS	4.534	F (1, 21) = 2.084	0.1636	ns
Sex x LPS	28.59	F (1, 21) = 13.14	0.0016	**
Age x Sex x LPS	0.01199	F (1, 21) = 0.005510	0.9415	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	0.981	21	0.9929	ns
Adult:Male LPS vs. Aged:Male LPS	2.253	21	0.3486	ns
Adult:Female Saline vs. Aged:Female Saline	0.6348	21	0.9999	ns
Adult:Female LPSg vs. Aged:Female LPS	0.8557	21	0.9979	ns
Adult:Male Saline vs. Adult:Male LPS	1.821	21	0.6462	ns
Adult:Female Saline vs. Adult:Female LPS	1.812	21	0.6526	ns
Aged:Male Saline vs. Aged:Male LPS	3.419	21	0.0305	*
Aged:Female Saline vs. Aged:Female LPS	0.3214	21	>0.9999	ns
Adult:Male Saline vs. Adult:Female Saline	2.921	21	0.0937	ns
Adult:Male LPS vs. Adult:Female LPS	0.8682	21	0.9976	ns
Aged:Male Saline vs. Aged:Female Saline	1.161	21	0.9724	ns
Aged:Male LPS vs. Aged:Female LPS	2.512	21	0.2178	ns
Figure 3D: Soma Volume (μm^3)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	0.2787	F (1, 23) = 0.1151	0.7375	ns
Sex	34.89	F (1, 23) = 14.41	0.0009	***
LPS	1.808	F (1, 23) = 0.7470	0.3964	ns
Age x Sex	0.2657	F (1, 23) = 0.1097	0.7434	ns
Age x LPS	1.482	F (1, 23) = 0.6121	0.442	ns
Sex x LPS	0.8926	F (1, 23) = 0.3688	0.5496	ns
Age x Sex x LPS	4.093	F (1, 23) = 1.691	0.2064	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	0.2684	23	>0.9999	ns
Adult:Male LPS vs. Aged:Male LPS	0.2602	23	>0.9999	ns
Adult:Female Saline vs. Aged:Female Saline	0.6671	23	0.9998	ns
Adult:Female LPS vs. Aged:Female LPS	1.405	23	0.8982	ns
Adult:Male Saline vs. Adult:Male LPS	0.1331	23	>0.9999	ns
Adult:Female Saline vs. Adult:Female LPS	1.814	23	0.6455	ns
Aged:Male Saline vs. Aged:Male LPS	0.3954	23	>0.9999	ns
Aged:Female Saline vs. Aged:Female LPS	0.2887	23	>0.9999	ns
Adult:Male Saline vs. Adult:Female Saline	2.742	23	0.1308	ns
Adult:Male LPS vs. Adult:Female LPS	0.795	23	0.9989	ns
Aged:Male Saline vs. Aged:Female Saline	1.623	23	0.7791	ns
Aged:Male LPS vs. Aged:Female LPS	2.46	23	0.2326	ns

Supplemental Table 4: CA1 IBA1+ Microglia (#/ROI)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	1.798	F (1, 21) = 0.6112	0.4431	ns
Sex	6.728	F (1, 21) = 2.287	0.1453	ns
LPS	4.07	F (1, 21) = 1.384	0.2526	ns
Age x Sex	10.7	F (1, 21) = 3.636	0.0703	ns
Age x LPS	6.99	F (1, 21) = 2.377	0.1381	ns
Sex x LPS	3.675	F (1, 21) = 1.250	0.2763	ns
Age x Sex x LPS	0.7475	F (1, 21) = 0.2541	0.6194	ns

Supplemental Table 4: CA1 IBA1+ Staining Area (x10^6 voxels)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	1.944	F (1, 20) = 0.9908	0.3314	ns
Sex	1.719	F (1, 20) = 0.8760	0.3605	ns
LPS	2.453	F (1, 20) = 1.250	0.2767	ns
Age x Sex	11.97	F (1, 20) = 6.100	0.0226	*
Age x LPS	3.072	F (1, 20) = 1.566	0.2252	ns
Sex x LPS	30.09	F (1, 20) = 15.34	0.0009	***
Age x Sex x LPS	1.788	F (1, 20) = 0.9111	0.3512	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	1.584	20	0.809	ns
Adult:Male LPS vs. Aged:Male LPS	1.881	20	0.6057	ns
Adult:Female Saline vs. Aged:Female Saline	1.84	20	0.6354	ns
Adult:Female LPS vs. Aged:Female LPS	0.3658	20	>0.9999	ns
Adult:Male Saline vs. Adult:Male LPS	2.369	20	0.2891	ns
Adult:Female Saline vs. Adult:Female LPS	2.502	20	0.2263	ns
Aged:Male Saline vs. Aged:Male LPS	2.666	20	0.1644	ns
Aged:Female Saline vs. Aged:Female LPS	0.296	20	>0.9999	ns
Adult:Male Saline vs. Adult:Female Saline	4.47	20	0.0028	**
Adult:Male LPS vs. Adult:Female LPS	0.6852	20	0.9998	ns
Aged:Male Saline vs. Aged:Female Saline	0.6678	20	0.9998	ns
Aged:Male LPS vs. Aged:Female LPS	2.428	20	0.2598	ns

Supplemental Table 4: CA1 Soma Volume (μm^3)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	1.983	F (1, 22) = 0.6652	0.4235	ns
Sex	19.92	F (1, 22) = 6.680	0.0169	*
LPS	0.842	F (1, 22) = 0.2824	0.6004	ns
Age x Sex	0.03896	F (1, 22) = 0.01307	0.91	ns
Age x LPS	7.268	F (1, 22) = 2.438	0.1327	ns
Sex x LPS	1.457	F (1, 22) = 0.4886	0.4919	ns
Age x Sex x LPS	0.5962	F (1, 22) = 0.2000	0.6591	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	0.0888	22	>0.9999	ns
Adult:Male LPS vs. Aged:Male LPS	1.064	22	0.9859	ns
Adult:Female Saline vs. Aged:Female Saline	0.6299	22	0.9999	ns
Adult:Female LPS vs. Aged:Female LPS	1.41	22	0.8968	ns
Adult:Male Saline vs. Adult:Male LPS	1.22	22	0.96	ns
Adult:Female Saline vs. Adult:Female LPS	0.9581	22	0.9941	ns
Aged:Male Saline vs. Aged:Male LPS	0.056	22	>0.9999	ns
Aged:Female Saline vs. Aged:Female LPS	1.049	22	0.9875	ns
Adult:Male Saline vs. Adult:Female Saline	1.274	22	0.9462	ns
Adult:Male LPS vs. Adult:Female LPS	1.536	22	0.8338	ns
Aged:Male Saline vs. Aged:Female Saline	0.5968	22	>0.9999	ns
Aged:Male LPS vs. Aged:Female LPS	1.882	22	0.5979	ns

Supplemental Table 4: CA3 IBA1+ Microglia (#/ROI)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	43.17	F (1, 21) = 19.32	0.0003	***
Sex	0.7592	F (1, 21) = 0.3397	0.5662	ns
LPS	1.339	F (1, 21) = 0.5993	0.4475	ns
Age x Sex	7.226	F (1, 21) = 3.233	0.0866	ns
Age x LPS	1.364	F (1, 21) = 0.6103	0.4434	ns
Sex x LPS	0.6524	F (1, 21) = 0.2919	0.5947	ns
Age x Sex x LPS	0.5151	F (1, 21) = 0.2305	0.6361	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	3.424	21	0.0302	*
Adult:Male LPS vs. Aged:Male LPS	2.615	21	0.1776	ns
Adult:Female Saline vs. Aged:Female Saline	1.423	21	0.8922	ns
Adult:Female LPS vs. Aged:Female LPS	1.218	21	0.961	ns
Adult:Male Saline vs. Adult:Male LPS	0.7341	21	0.9995	ns
Adult:Female Saline vs. Adult:Female LPS	0.8568	21	0.9979	ns
Aged:Male Saline vs. Aged:Male LPS	0.5045	21	>0.9999	ns
Aged:Female Saline vs. Aged:Female LPS	0.4975	21	>0.9999	ns
Adult:Male Saline vs. Adult:Female Saline	0.5671	21	>0.9999	ns
Adult:Male LPS vs. Adult:Female LPS	0.6764	21	0.9998	ns
Aged:Male Saline vs. Aged:Female Saline	1.562	21	0.8201	ns
Aged:Male LPS vs. Aged:Female LPS	0.7215	21	0.9996	ns

Supplemental Table 4: CA3 IBA1+ Staining Area (x10^6 voxels)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	10.85	F (1, 21) = 3.853	0.063	ns
Sex	0.7231	F (1, 21) = 0.2568	0.6176	ns
LPS	3.193	F (1, 21) = 1.134	0.299	ns
Age x Sex	1.836	F (1, 21) = 0.6523	0.4283	ns
Age x LPS	2.062	F (1, 21) = 0.7325	0.4017	ns
Sex x LPS	14.55	F (1, 21) = 5.167	0.0336	*
Age x Sex x LPS	4.648	F (1, 21) = 1.651	0.2128	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	0.3339	21	>0.9999	ns
Adult:Male LPS vs. Aged:Male LPS	2.411	21	0.2632	ns
Adult:Female Saline vs. Aged:Female Saline	0.7778	21	0.9992	ns
Adult:Female LPS vs. Aged:Female LPS	0.3565	21	>0.9999	ns
Adult:Male Saline vs. Adult:Male LPS	0.5878	21	>0.9999	ns
Adult:Female Saline vs. Adult:Female LPS	0.3825	21	>0.9999	ns
Aged:Male Saline vs. Aged:Male LPS	2.906	21	0.0969	ns
Aged:Female Saline vs. Aged:Female LPS	0.8038	21	0.9988	ns
Adult:Male Saline vs. Adult:Female Saline	1.221	21	0.9602	ns
Adult:Male LPS vs. Adult:Female LPS	0.1499	21	>0.9999	ns
Aged:Male Saline vs. Aged:Female Saline	1.599	21	0.7978	ns
Aged:Male LPS vs. Aged:Female LPS	2.046	21	0.4826	ns

Supplemental Table 4: CA3 Soma Volume (μm^3)				
Analysis: 3-way ANOVA	**% of total variation**	**F (DFn, DFd)**	**P value**	**Summary**
Age	0.06652	F (1, 22) = 0.02692	0.8712	ns
Sex	25.14	F (1, 22) = 10.18	0.0042	**
LPS	3.016	F (1, 22) = 1.221	0.2811	ns
Age x Sex	1.283	F (1, 22) = 0.5192	0.4788	ns
Age x LPS	9.577	F (1, 22) = 3.876	0.0617	ns
Sex x LPS	1.38	F (1, 22) = 0.5585	0.4628	ns
Age x Sex x LPS	2.485	F (1, 22) = 1.006	0.3268	ns
Posthoc: Šídák's multiple comparisons test	**t**	**DF**	**Adjusted P value**	**Summary**
Adult:Male Saline vs. Aged:Male Saline	0.7335	22	0.9995	0.9995
Adult:Male LPS vs. Aged:Male LPS	0.213	22	>0.9999	>0.9999
Adult:Female Saline vs. Aged:Female Saline	1.006	22	0.9911	0.9911
Adult:Female LPS vs. Aged:Female LPS	2.007	22	0.5068	0.5068
Adult:Male Saline vs. Adult:Male LPS	0.6377	22	0.9999	0.9999
Adult:Female Saline vs. Adult:Female LPS	2.51	22	0.2144	0.2144
Aged:Male Saline vs. Aged:Male LPS	0.3165	22	>0.9999	>0.9999
Aged:Female Saline vs. Aged:Female LPS	0.5394	22	>0.9999	>0.9999
Adult:Male Saline vs. Adult:Female Saline	2.033	22	0.4882	0.4882
Adult:Male LPS vs. Adult:Female LPS	0.3742	22	>0.9999	>0.9999
Aged:Male Saline vs. Aged:Female Saline	1.761	22	0.6866	0.6866
Aged:Male LPS vs. Aged:Female LPS	2.168	22	0.3967	0.3967